

## TREES

<i>Abies balsamea</i>	<i>Populus balsamifera</i>
<i>Acer pennsylvanicum</i>	<i>Populus grandidentata</i>
<i>Acer rubrum</i>	<i>Populus tremuloides</i>
<i>Acer saccharum</i>	<i>Prunus pennsylvanica</i>
<i>Betula papyrifera</i>	<i>Prunus virginiana</i>
<i>Fagus grandifolia</i>	<i>Thuja occidentalis</i>
<i>Fraxinus nigra</i>	<i>Tsuga canadensis</i>
<i>Pinus strobus</i>	<i>Ulmus americana</i>

## SUMMARY

1. The effect of inundation upon upland vegetation (beech-maple forest and lowland forest) was studied above a beaver dam in Carp Creek (an area of approximately 9700 square meters), in the vicinity of Douglas Lake, Michigan, during the second summer of its construction.

2. The original vegetation was affected seriously. All herbaceous vegetation with two exceptions was eliminated following the flooding; no shrubs except seedlings or very small saplings, on large logs at or in the water, were to be found, and 77% of all the trees in the empounded area were dead or dying.

KANSAS STATE AGRICULTURAL COLLEGE  
MANHATTAN, KANSAS.

## Explanation of plate

- A. The west end of the dam contrasting the unattacked area in the background with that worked over in the foreground.
- B. Upstream over the dam. The large hemlock near the left is now in 1.3 meters of water.
- C. Appearance towards the upper end of the pond.

Photographs A by F. C. Gates; B by H. K. Gloyd; and C by Edward Breakey.

## AN ECONOMICAL HERBARIUM CASE

E. D. MERRILL

I was recently obliged to provide storage space for a large and rapidly increasing herbarium, in connection with my efforts to build up at the University of California a general Indo-Malaysian and Chinese reference collection. Within a period of less than two years material in excess of 40,000 mounted

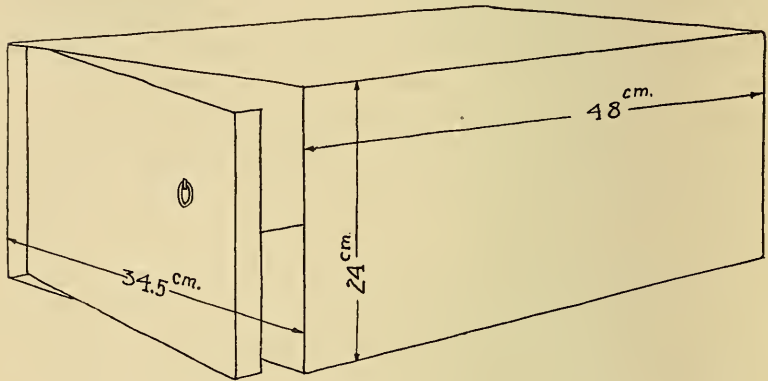
sheets has been acquired, but no herbarium space was available for this rapid expansion, and funds were not available for the purchase of steel, or even wooden cases.

I accordingly investigated the feasibility of adapting ordinary corrugated paper cartons, such as are now extensively used for shipping various products by express and parcel post, to herbarium storage purposes. Several different types were designed until finally a form was evolved that is not only eminently satisfactory for the purposes indicated but which is also very economical, convenient, and, generally speaking, as tight and as nearly insect and dust proof as is the average wooden case. These cartons have been found to be so thoroughly satisfactory after two years of constant use that I feel that botanical institutions, and botanists generally who maintain working collections of herbarium material, should be apprised of this innovation. These specially designed cartons are not only eminently satisfactory for the economical storage of mounted botanical material but also form a most excellent medium for the storage of duplicate specimens, unmounted material that is awaiting attention, and for various other needs of the growing herbarium.

The size finally selected as best adapted to the purposes indicated is 48 cm. long, 34.5 cm. wide, and 24 cm. high, *outside measurements*. Each unit consists of an outer and inner sleeve. The outer sleeve forms an oblong case open at both ends, the edges of the sheet of corrugated cardboard forming this sleeve being firmly fastened with a single strip of gummed cloth on the outside; manufacturers deliver them in this form.

The inner sleeve is merely a strip of corrugated cardboard about 1.6 m. long and just wide enough to fit snugly inside the inner sleeve. This is creased so as to automatically form an oblong case open at top and bottom, fitting closely inside the outer sleeve. This inner sleeve forms the rear end of the unit, double sides, the front end forming a flap which serves as a door; a flange about 4 cm. wide serves to hold the door in place when closed. Compensation for this flange is provided for by making the right hand side of the inner sleeve correspondingly shorter than the left hand side. The inner sleeve is firmly pasted in position through the use of sodium silicate (water glass). The rear end is sealed with craft tape such as is used by tradesmen for fastening packages and cartons, the 5 cm. width being the

preferable size. It is essential that this inner sleeve, when in place, be approximately 1 cm. shorter than the outer one so that when the units are full of heavy herbarium sheets and their accompanying genus and species covers there shall be no sagging at the front end; the inset front end or door prevents undue sagging. The details of these units are best brought out in the figure.



To complete a unit, a slip of paper should be pasted in the rear of each and a handful of flake naphthalene placed under the flap to act as a repellent to keep out destructive insects; if a small amount of paradichlorobenzine be mixed with the naphthalene a thoroughly efficient repellent and disinfectant is provided. The front flap of the door should be provided with the proper knob or handle to facilitate opening and closing. The pull clips supplied by the Globe Warnicke Co. for their cardboard filing cases serve the purpose admirably, or a very satisfactory one may be improvised by using an ordinary brass curtain ring, fastened in place by means of a flat brass manuscript staple about one and one-half inches long, the prongs passing through a half-inch washer and spread on the inside of the door.

These cartons, when constructed of good grade corrugated cardboard, are exceedingly durable if protected from moisture; are strong enough to bear the weight of an average man without breaking down; are as tight as any ordinary wooden case; and when stacked in tiers and filled with botanical specimens have

shown no deterioration after two years' constant use. In those used by me there has been no indication of the front flap breaking at the hinge, and should it eventually break it can be very easily repaired with gummed cloth or craft tape. In arranging the boxes in single or double tiers, the individual units may be pasted in place with sodium silicate (water glass) or the upper and outer rows may be merely bound in place with craft tape. The former method is best, as thoroughly pasting the bottom of one unit on the top of the one next below is structurally stronger and tends to prevent sagging. The individual units may be stacked in double rows, back to back, forming alcoves and the containers are so strong that they may be stacked to any reasonable height. The stacks at present in use are about six feet high.



In these days of high costs, the economy of this type of herbarium case is most striking. On the basis of orders of five hundred units delivered "knocked down" and ready to put together, the cost in San Francisco is about fifteen cents each. At a cost of about \$150.00 storage space for approximately

100,000 mounted sheets can be provided. These cartons may be had of paper box manufacturers or wholesale paper dealers in any large city.

A modification of these units as to size (about 28 cm. high, 9 cm. wide, and 21 cm. deep), forms excellent, durable, dust proof pamphlet holders, which may even be stacked without the use of shelving if so desired. No doubt many other uses will be developed for these very satisfactory containers.

UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIF.

## REMARKABLE BEHAVIOR OF A VETERAN WHITE OAK

ELIZA FRANCES ANDREWS

It is not the great age and size of this tree that claims our attention here, but its surprising defiance of natural conditions during the unprecedented drouth of the past summer which has been so fatal to vegetation throughout the Southeastern States, and has, in many cases baffled the efforts of man himself to save his crops and herds and keep the machinery of his great industries running. When it first attracted my attention some four or five years ago, "Time's effacing fingers" had already left their marks upon it, as indicated by the following record, made at the time in my note book; "It is now in a very decadent condition, and among the undergrowth around it there are no signs of progeny to take its place." It continued to decline slowly, the foliage gradually becoming paler and thinner until the great drouth came—and then, behold! a miracle.

About the middle of September, 1925, when the drouth had reached its climax, I made a visit to this Methusaleh of the forest, expecting to find it dead, or dying, but imagine my surprise at seeing it covered with luxuriant foliage of the rich deep green color indicative of health and vigor, and a fine crop of seedlings on the ground around it. In fact, this tree appeared to be thriving under conditions that were destroying vegetation all around it. The two girls in the foreground of the photograph are four feet and a half, and five feet tall respectively, and the contrast between their size and that of the tree may give the reader a fair idea of the cyclopean dimensions of the latter.